On October 8, 2019, in connection with DIRTT Environmental Solutions Ltd. (“DIRTT”) filing a registration statement with the U.S. Securities and Exchange Commission, DIRTT refiled its Management’s Discussion and Analysis for the interim period ended June 30, 2019 to reflect the conversion of DIRTT’s financial statements to U.S. GAAP using a U.S. dollar presentation currency.

ITEM 2. FINANCIAL INFORMATION

Selected Financial Data

The following table sets forth selected historical consolidated financial information for each of the periods indicated. This information should be read together with "Management's Discussion and Analysis of Financial Condition and Results of Operations" and with the accompanying consolidated financial statements and related notes included in this registration statement. The selected historical financial information indicated for the years ended December 31, 2018, 2017, and 2016 and as of December 31, 2018 and 2017 have been derived from our audited consolidated financial statements prepared in conformity with GAAP included elsewhere in this registration statement. The selected historical financial information indicated for the three and six months ended June 30, 2019 and 2018 and as of June 30, 2019 have been derived from our unaudited interim condensed consolidated financial statements prepared in conformity with GAAP included elsewhere in this registration statement. Historical results set forth in the following table and elsewhere in this registration statement are not necessarily indicative of future performance.

	Three Months Ended June 30,		Six Months Ended June 30,		Year Ended December 31,		
	2019	2018	2019	2018	2018	2017	2016
	($ in thousands, except per share data)						
Revenue							
Product Revenue	$61,273	$60,552	$125,113	$121,658	$266,434	$216,216	$196,482
Service Revenue	2,818	1,928	4,039	4,670	8,247	10,323	4,882
Total Revenue	64,091	62,480	129,152	126,328	274,681	226,539	201,364
Cost of Sales							
Product Cost of Sales	37,102	37,809	77,170	73,739	161,844	131,326	117,600
Service Cost of Sales	2,568	1,340	3,957	3,284	5,828	9,724	4,620
Total Cost of Sales	39,670	39,149	81,127	77,023	167,672	141,050	122,220
Gross Profit	24,421	23,331	48,025	49,305	107,009	85,489	79,144
Total Operating Expenses(1)(2)	19,660	22,151	48,029	44,263	101,315	91,990	72,114
Operating Income (Loss)	4,761	1,180	(4)	5,042	5,694	(6,501)	7,030
Foreign Exchange (Gain) Loss	441	(469)	960	(1,205)	(3,214)	665	433
Interest Income	(38)	(112)	(92)	(226)	(425)	(399)	(457)
Interest Expense	25	99	74	203	503	500	213
Net Income (Loss) Before Tax	4,333	1,662	(946)	6,270	8,830	(7,267)	6,841
Income Taxes	1,722	892	1,708	2,430	3,280	458	2,942
Net Income (Loss)	$ 2,611	$ 770	$ (2,654)	$ 3,840	$ 5,550	$ (7,725)	$ 3,899
Income (Loss) Per Share							
Basic	$ 0.03	$ 0.01	$ (0.03)	$ 0.05	$ 0.07	$ (0.09)	$ 0.05
Diluted	$ 0.03	$ 0.01	$ (0.03)	$ 0.05	$ 0.07	$ (0.09)	$ 0.05

(1) In 2018 and 2017, we incurred $7.4 million and $1.1 million in reorganization expenses, respectively. In the second quarter of 2019 and 2018, we recorded a $1.7 million recovery of stock-based compensation, and a $0.6 million stock-based compensation expense, respectively. In the first quarter of 2019 and 2018, we incurred $6.4 million and $0.6 million of stock-based compensation expenses, respectively, and $2.6 million and $1.6 million in reorganization expenses, respectively. See "Management's Discussion and Analysis of Financial Condition and Results of Operations – Results of Operations" for more information.

(2) In 2018, we incurred $8.7 million in impairment expenses. See "Management's Discussion and Analysis of Financial Condition and Result of Operations – Results of Operations" for more information.

	As of June 30,	As of December 31,	
	2019	2018	2017
	($ in thousands)		
Balance Sheet			
Cash and Cash Equivalents	$ 58,736	$ 53,412	$ 63,484
Total Assets	$ 185,229	$175,911	$174,438
Total Liabilities	$ 61,410	$ 52,397	$ 47,919

Management's Discussion and Analysis of Financial Condition and Results of Operations

The following discussion is intended to assist in the understanding of trends and significant changes in our results of operations and financial condition for the periods presented. This section should be read in conjunction with our consolidated financial statements and related notes for the years ended December 31, 2018, 2017 and 2016 and our unaudited interim condensed consolidated financial statements and related notes for the three and six months ended June 30, 2019 and 2018 included in this registration statement.

Operating Highlights

- Revenue increased by 3% to $64.1 million for the three months ended June 30, 2019 compared to $62.5 million for the three months ended June 30, 2018. Revenue increased by 2% to $129.2 million for the six months ended June 30, 2019, compared to $126.3 million for the six months ended June 30, 2018. Revenue increased due to higher product and associated transportation sales, and an increase in installation activity in the second quarter of 2019. Additionally, the first quarter of 2018 included an estimated $4.0 million to $7.0 million of revenue (3% to 6% of year-to-date 2018 revenue) related to projects that were delayed by hurricanes in the fourth quarter of 2017 and delivered in the first quarter of 2018.
- Gross profit margin increased to 38.1% for the three months ended June 30, 2019 compared to 37.3% for the three months ended June 30, 2018. Gross profit margin decreased to 37.2% for the six months ended June 30, 2019, compared to 39.0% for the six months ended June 30, 2018. Costs related to the tile warping issue, as discussed below, headcount additions added throughout 2018 in anticipation of higher production volumes, and decreased margins on installation services were partially offset by improvements in product and transportation gross margins due to sales mix and the realization of operational efficiencies. We have identified and are implementing what we believe is a permanent solution for the tile warping issue; see "—Outlook" for more information.
- Operating expenses decreased 11% to $19.7 million for the three months ended June 30, 2019 compared to $22.1 million for the three months ended June 30, 2018, in part due to a $1.7 million recovery of stock-based compensation expense and a $0.8 million decrease in reorganization costs. These and other cost decreases were partially offset by $1.3 million of consulting costs incurred for our sales and marketing evaluation (the "Sales & Marketing Plan"), and $0.4 million of costs associated with the intended listing of our common shares on the Nasdaq stock exchange (the "U.S. Listing").
- Operating expenses increased by $3.8 million or 9% to $48.0 million for the six months ended June 30, 2019, from $44.3 million for the six months ended June 30, 2018. This increase was due to a $3.7 million increase in stock-based compensation expense, $1.3 million of costs incurred for the Sales & Marketing Plan, a $1.1 million reduction in capitalization of internally generated intangible assets, $1.1 million of costs associated with the U.S. Listing, and a $0.2 million increase in reorganization costs. These items were partially offset by reductions in non-revenue generating expenditures.
- Net income increased to $2.6 million ($0.03 per share) for the three months ended June 30, 2019 from $0.8 million ($0.01 per share) for the three months ended June 30, 2018. Net loss was $2.7 million ($0.03 loss per share) for the six months ended June 30, 2019, compared to net income of $3.8 million ($0.05 per share) for the six months ended June 30, 2018. Net income (loss) for both periods was affected primarily by the increases in gross profit, higher operating expenses, and the impacts of a $1.7 million recovery of stock based compensation expense and a $6.4 million expense recorded to account for the fair value of stock-based compensation for the three and six months ended June 30, 2019, respectively.
- Adjusted EBITDA decreased 15% to $5.6 million (8.7% of revenue) for the three months ended June 30, 2019 from $6.6 million (10.6% of revenue) for the three months ended June 30, 2018. Adjusted EBITDA decreased 26% to $12.6 million (9.7% of revenue) for the six months ended June 30, 2019 from $17.0 million (13.5% of revenue) for the six months ended June 30, 2018. Adjusted EBITDA decreased due to the inclusion of costs of the U.S. Listing and Sales & Marketing Plan in operating expenses and foreign exchange losses.
- Working capital decreased to $66.5 million at June 30, 2019, from $69.8 million at December 31, 2018, as a result of the repayment in the first quarter of $5.6 million of long-term debt (of which the long-term portion was $3.1 million), $3.4 million payment for stock options surrendered for cash in addition to a $2.8 million increase in the current liability for cash-settled stock options, and the addition of $4.7 million of current portion of lease liabilities;
- Cash and cash equivalents increased to $58.7 million at June 30, 2019 from $53.4 million at December 31, 2018. Cash increases reflect $13.9 million of cash generated by operating activities, offset by $5.2 million of capital expenditures and $5.5 million used in financing activities, which includes the $5.6 million repayment of long-term debt. With current cash on hand, expected ongoing cashflow from operations, and available borrowings, we believe we have the financial capacity to support anticipated future growth.

Outlook

We continued to execute our plan to transform the Company into a scalable growth platform that will drive market penetration and improve project delivery and related profitability. Since we have a robust and proven product suite already in place, including our ICE Software platform, our plan focuses on three major initiatives, all of which are underway and ongoing:

- developing and implementing an efficient and effective sales and marketing approach to drive profitable growth in market segments where our value proposition resonates;
- increasing operational effectiveness within our manufacturing facilities, with a focus on improved safety, quality control, capacity management, metric-based process improvements, and strategic sourcing; and
- enhancing ongoing corporate cost control measures, accountabilities and processes including department level budgeting, monthly management reporting and forecasting, and talent development initiatives.

In April 2019, we engaged an internationally recognized consulting firm to evaluate our current sales and marketing approach and assist in the development of a Sales & Marketing Plan to increase profitability and accelerate future growth. Evaluation of the Sales & Marketing Plan and related implementation steps are currently underway and will be synthesized into an overall strategic plan that is expected to be presented to the investment community during the fourth quarter of 2019. At June 30, 2019, we had incurred $1.3 million of the total estimated $2.0 million cost of this engagement.

We concluded our search for a Chief Commercial Officer, a role that was created for the purpose of leading the sales and marketing transformation to drive aggressive growth. Our new Chief Commercial Officer, Jennifer Warawa, started in this role effective September 16, 2019. In addition, we have appointed a national account director, promoted internally, to improve our approach to selling to clients with national footprints. We are currently enhancing and expanding our Green Learning Center (“GLC”) in New York City, expected to be completed in the fourth quarter of 2019 and designing a GLC in Seattle, with openings expected to be open in the fourth quarter of 2019 and the first quarter of 2020, respectively. In addition to these sales and marketing additions and enhancements, we have promoted Mark Greffen to Chief Technology Officer in recognition of his responsibilities to continue driving innovation and development of ICE Software and related digital platforms.

Our operational effectiveness improvements are driven by the fundamental goals of achieving 99% on time delivery with zero deficiencies, in a safe and cost-effective manner. During the second quarter of 2019, the Company continued to implement lean manufacturing practices in its facilities, including the adoption of standard measures and reporting through its Safety, Quality, Delivery, Inventory & Productivity boards, the introduction of process monitoring and alert systems, and the establishment of root cause analysis methodologies. Realization of the benefits of these improvements commenced in the second quarter and are expected to continue through the remainder of 2019 and beyond.

In the second half of 2018, we experienced warping in a small portion of our medium density fiberboard (“MDF”) tiles, primarily in locations that experience high humidity or significant variability in humidity and temperature. We conducted a root cause analysis and believe we have identified a permanent solution to the issue. The solution is being implemented in two phases and involves applying a primer coating on both sides of the MDF, which results in significantly less moisture absorption than unprimed MDF. We will initially source the primed MDF from a third party while we acquire and install the necessary equipment to apply the primer to the MDF in our factories. We expect to incur approximately $2.0 million in total equipment and installation costs to implement the solution, with anticipated commissioning of the new equipment in the first quarter of 2020. For the remainder of 2019 and until commissioning of this equipment, we expect that the cost for MDF will be commensurate with that incurred in the first two quarters. Upon commissioning, we expect cost reductions of between $0.7 million and $1.5 million per annum, relative to 2019 costs and based on 2019 volumes. Costs associated with controlling tile warping, mainly due to higher material costs, were $0.5 million and $2.0 million in the second quarter and year-to-date periods of 2019, respectively.

In the second quarter of 2019, we concluded an evaluation of our aluminum, tile and millwork capacities under various growth scenarios, including lead times for development of new facilities and a risk assessment of the effect of the loss of one of our facilities. We concluded that while sufficient capacity and redundancy exists within our aluminum frame plants to support future growth, the longer lead time to acquire tile and millwork manufacturing equipment combined with the lack of redundancy in our tile and millwork facilities result in the need to commence construction of a new combined tile and millwork facility (the “Facility”). Management has identified two potential sites in the southeastern United States and is currently in negotiations to select the ultimate site, with the selection process anticipated to be completed by the end of 2019. We have commenced development plans for the Facility, which will be built to our specifications and leased to us by a third party. We have also entered into negotiations for purchase of the production equipment. The Facility is expected to be in service in the first quarter of 2021, with a total budget of $18.5 million that will be funded with cash on hand.

We are continuing with the intended listing of our common shares on Nasdaq in the second half of 2019 to offset the loss of our foreign private issuer status and enhance the marketability of our common shares (particularly in the United States). To prepare for the U.S. Listing, we have completed the conversion of our financial statements to U.S. GAAP with a U.S. dollar presentation currency. Management has also performed an in-depth assessment of our governance policies and related documentation to comply with U.S. securities laws and listing standards. We expect to incur total costs of approximately $1.5 million to prepare for the U.S. Listing, of which $1.1 million was incurred by June 30, 2019. We intend to cease the current practice of allowing employee stock options to be surrendered for cash and will revert to settling exercises with common shares issued from treasury once our U.S. listing is completed.

At June 30, 2019, we had $66.5 million of working capital (compared to $69.8 million at December 31, 2018), including $58.7 million of cash on hand (compared to $53.4 million at December 31, 2018) and no long-term debt (compared to $3.1 million at December 31, 2018). In July 2019, we entered into a C$50 million senior secured revolving credit facility with the Royal Bank of Canada (the “RBC Credit Facility”) replacing our prior revolving credit facility with Comerica Bank (the “Comerica Credit Facility”) that expired on June 30, 2019. Both Canadian and U.S. dollar denominated drawings are available under the RBC Credit Facility. We believe current working capital and cash generation from operations, combined with the RBC Credit Facility, will provide sufficient financial capacity for us to execute our growth plans for the foreseeable future.

Our management expects that 2019 total revenue will be comparable to 2018 total revenue. Several factors have affected our expected revenue for the second half of 2019, including the revised timing of various projects from 2019 into 2020 and the loss of certain anticipated projects. These factors reinforce our belief that sales in 2019 have been adversely affected by an immature go-to-market approach and an inadequately supported sales force working on a long sales cycle.

Our management expects that Adjusted EBITDA for 2019 will be lower than 2018 as a result of: unusual costs, lower gross profit margin, and foreign exchange losses incurred in 2019 compared to foreign exchange gains in 2018. Unusual costs, all anticipated to be completed by the end of the third quarter of 2019, consist of $2.0 million relating to third-party sales and marketing consultant fees, approximately $1.5 million of U.S. Listing costs, and other operational consultant costs. Of these costs, we have incurred $1.3 million, $1.1 million and $1.1 million, respectively, as of June 30, 2019.

Our management also expects that Adjusted Gross Profit Margin for 2019 will be lower than 2018 as a result of costs associated with the now-resolved tile warping issue and labor additions made in the second half of 2018.

Management views 2019 as a year of transition while we make necessary changes to develop and strengthen our sales function, a core component of implementing our strategic plan. As a part of our strategic plan to further develop a strong and effective sales organization, we created and filled the role of chief commercial officer, established a national accounts function, and are implementing an appropriate sales organization with key processes, systems and metrics.

Non-GAAP Financial Measures

Note Regarding Use of Non-GAAP Financial Measures

Our consolidated financial statements are prepared in accordance with GAAP. These GAAP financial statements include non-cash charges and other charges and benefits that we believe are unusual or infrequent in nature or that we believe may make comparisons to our prior or future performance difficult.

As a result, we also provide financial information in this registration statement that is not prepared in accordance with GAAP and should not be considered as an alternative to the information prepared in accordance with GAAP. Management uses these non-GAAP financial measures in its review and evaluation of the financial performance of the Company. We believe that these non-GAAP financial measures also provide additional insight to investors and securities analysts as supplemental information to our GAAP results and as a basis to compare our financial performance from period to period and to compare our financial performance with that of other companies. We believe that these non-GAAP financial measures facilitate comparisons of our core operating results from period to period and to other companies by removing the effects of our capital structure (net interest income on cash deposits, interest expense on outstanding debt, or foreign exchange movements on debt revaluation), asset base (depreciation and amortization), tax consequences and stock-based compensation. In addition, management bases certain forward-looking estimates and budgets on non-GAAP financial measures, primarily Adjusted EBITDA.

Reorganization expenses, impairment expenses, depreciation and amortization, and stock-based compensation are excluded from our non-GAAP financial measures because management considers them to be outside of the Company's core operating results, even though some of those expenses may recur, and because management believes that each of these items can distort the trends associated with the Company's ongoing performance. We believe that excluding these expenses provides investors and management with greater visibility to the underlying performance of the business operations, enhances consistency and comparativeness with results in prior periods that do not, or future periods that may not, include such items, and facilitates comparison with the results of other companies in our industry.

The following non-GAAP financial measures are presented in this registration statement, and a description of the calculation for each measure is included.

Adjusted Gross Profit	Gross profit before deductions for depreciation and amortization
Adjusted Gross Profit Margin	Adjusted Gross Profit divided by revenue
EBITDA	Net income before interest, taxes, depreciation and amortization
Adjusted EBITDA	EBITDA adjusted for non-cash foreign exchange gains or losses on debt revaluation; impairment expenses; stock-based compensation expense; reorganization expenses; and any other non-core gains or losses
Adjusted EBITDA Margin	Adjusted EBITDA divided by revenue
Adjusted Net Income	Net Income excluding the tax effected impact of impairment, reorganization expenses, and stock-based compensation fair value adjustment

You should carefully evaluate these non-GAAP financial measures, the adjustments included in them, and the reasons we consider them appropriate for analysis supplemental to our GAAP information. Each of these non-GAAP financial measures has important limitations as an analytical tool due to exclusion of some but not all items that affect the most directly comparable GAAP financial measures. You should not consider any of these non-GAAP financial measures in isolation or as substitutes for an analysis of our results as reported under GAAP. You should also be aware that we may recognize income or incur expenses in the future that are the same as, or similar to, some of the adjustments in these non-GAAP financial measures. Because these non-GAAP financial measures may be defined differently by other companies in our industry, our definitions of these non-GAAP financial measures may not be comparable to similarly titled measures of other companies, thereby diminishing their utility.

EBITDA and Adjusted EBITDA for the Three and Six Months Ended June 30, 2019 and 2018

The following table presents a reconciliation for the second quarter and year-to-date results of 2019 and 2018 of EBITDA and Adjusted EBITDA to our net income (loss), which is the most directly comparable GAAP measure for the periods presented:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
	($ in thousands)		($ in thousands)	
Net income (loss) for the period	$ 2,611	$ 770	$ (2,654)	$ 3,840
Add back (deduct):				
Interest Expense	25	99	74	203
Interest Income	(38)	(112)	(92)	(226)
Income Tax Expense	1,722	892	1,708	2,430
Depreciation and Amortization	2,940	3,475	6,335	6,798
EBITDA	$ 7,260	$ 5,124	5,371	$ 13,045
Stock-based Compensation Expense (Recovery)	(1,655)	564	4,792	1,135
Non-cash Foreign Exchange Loss (Gain) on Debt Revaluation	—	160	(211)	413
Reorganization Expense	—	764	2,639	2,410
Adjusted EBITDA	$ 5,605	$ 6,612	12,591	$ 17,003
Net Income Margin(1)	4.1%	1.2%	(2.1)%	3.0%
Adjusted EBITDA Margin	8.7%	10.6%	9.7%	13.5%

(1) Net income divided by revenue.

For the three months ended June 30, 2019, Adjusted EBITDA and EBITDA Margin decreased to $5.6 million or 8.7% from $6.6 million or 10.6% in the same period of 2018. This reflects the $1.2 million increase in Adjusted Gross Profit, less the $1.1 million increase in operating expenses, other than depreciation and amortization, stock-based compensation and reorganization (which included the impact of the Sales & Marketing Plan, U.S. Listing costs, and other one-time costs noted below), and $0.9 million increase in foreign exchange losses.

For the six months ended June 30, 2019, Adjusted EBITDA and Adjusted EBITDA Margin decreased to $12.6 million or 9.7% from $17.0 million or 13.5% in the same period of 2018. This reflects the $1.3 million decrease in Adjusted Gross Profit, $0.3 million increase in operating expenses, other than depreciation and amortization, stock-based compensation and reorganization (which included the impact of the Sales & Marketing Plan, U.S. Listing costs, and other one-time costs noted below), and a $2.2 million increase in foreign exchange losses.

EBITDA and Adjusted EBITDA for the Year Ended December 31, 2018, 2017 and 2016

The following table presents a reconciliation for 2018, 2017, and 2016 of EBITDA and Adjusted EBITDA to our net income (loss), which is the most directly comparable GAAP measure for the periods presented:

	Year Ended December 31,		
	2018	2017	2016
	($ in thousands)		
Net income (loss) for the period	$ 5,550	$ (7,725)	$ 3,899
Add back (deduct):			
Interest Expense	503	500	213
Interest Income	(425)	(399)	(457)
Income Tax Expense	3,280	458	2,942
Depreciation and Amortization	13,699	12,856	11,425
EBITDA	$22,607	$ 5,690	$18,022
Stock-based Compensation	3,661	2,738	2,576
Non-cash Foreign Exchange Loss (Gain) on Debt Revaluation	546	(731)	43
Impairment Expense	8,680	—	—
Reorganization Expense	7,380	1,143	—
Adjusted EBITDA	$42,874	$ 8,840	$20,641
Net Income (Loss) Margin[1]	2.0%	(3.4)%	1.9%
Adjusted EBITDA Margin	15.6%	3.9%	10.3%

(1) Net income (loss) divided by revenue.

Adjusted EBITDA and Adjusted EBITDA Margin increased respectively by 385% to $42.9 million or to 15.6% of revenue in 2018 from $8.8 million or 3.9% of revenue in 2017. These increases were due to increased sales activity and associated gross profit, a reduction in operating expenses, and foreign exchange gains. Additionally, revenue and associated Adjusted EBITDA for the fourth quarter of 2017 were reduced by construction delays resulting from hurricanes in parts of the United States. These reductions in 2017 partially contributed to the increases to 2018 revenue and Adjusted EBITDA.

Adjusted EBITDA in 2017 decreased by 57% to $8.8 million or 3.9% of revenue from $20.6 million or 10.3% of revenue in 2016. These decreases were due to increases in operating expenses in 2017, partially offset by increases in gross profit.

Adjusted Gross Profit and Adjusted Gross Profit Margin for the Three and Six Months Ended June 30, 2019 and 2018

The following table presents a reconciliation for the three and six months ended June 30, 2019 and 2018 of Adjusted Gross Profit to our gross profit, which is the most directly comparable GAAP measure for the periods presented:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
	($ in thousands)			
Gross Profit	$ 24,421	$ 23,331	$ 48,025	$ 49,305
Gross Profit Margin	38.1%	37.3%	37.2%	39.0%
Add: Depreciation Expense	$ 2,559	$ 2,443	$ 4,739	$ 4,774
Adjusted Gross Profit	$ 26,980	$ 25,774	$ 52,764	$ 54,079
Adjusted Gross Profit Margin	42.1%	41.3%	40.9%	42.8%

Gross profit and gross profit margin increased to $24.4 million or 38.1% for the three months ended June 30, 2019, from $23.3 million or 37.3% for the three months ended June 30, 2018. During the quarter, we began to realize the benefits of operational improvement activities in our manufacturing facilities. Reductions in direct material and transportation costs, due to improved efficiency and product mix, offset the incremental costs of $0.5 million (0.8% of gross profit) to mitigate further warping of our tiles, $1.0 million of costs associated with headcount additions throughout 2018 in anticipation of higher volumes, and a $0.7 million reduction in gross profit due to delivering certain installation projects in the current quarter that were contracted under unfavorable terms.

Gross profit and gross profit margin increased to $48.0 million, or 37.2%, for the six months ended June 30, 2019, from $49.3 million or 39.0% for the six months ended June 30, 2018. During the period, we incurred $2.0 million of incremental costs (1.6% of gross profit) to mitigate further warping of our tiles and $2.0 million of costs associated with headcount additions throughout 2018 in anticipation of higher volumes. We also experienced a $0.7 million reduction in gross profit due to reductions in second quarter gross profit on installation revenue, as previously discussed. These cost increases were partially offset by the benefits of the operational improvement activities as described above. We expect to further realize benefits from these activities as the year progresses.

Adjusted Gross Profit and Adjusted Gross Profit Margin for the Year Ended December 31, 2018, 2017 and 2016

The following table presents a reconciliation for 2018, 2017 and 2016 of Adjusted Gross Profit to our gross profit, which is the most directly comparable GAAP measure for the periods presented:

	Year Ended December 31,		
	2018	2017	2016
	($ in thousands)		
Gross Profit	$107,009	$85,489	$79,144
Gross Profit Margin	39.0%	37.7%	39.3%
Add: Depreciation Expense	$ 9,528	$ 8,705	$ 7,312
Adjusted Gross Profit	$116,537	$94,194	$86,456
Adjusted Gross Profit Margin	42.4%	41.6%	42.9%

For 2018, gross profit and gross profit margin increased respectively to $107.0 million or 39.0% of revenue from $85.5 million or 37.7% of revenue for 2017. Adjusted Gross Profit and Adjusted Gross Profit Margin increased respectively to $116.5 million or 42.4% of revenue in 2018 from $94.2 million or 41.6% of revenue in 2017. In 2018, we experienced savings from the increased leverage on fixed manufacturing overhead costs and improved installation margins; however, we also experienced a higher-than-normal volume of warping of tiles, resulting in approximately $3.5 million of repair costs and provisions, which reduced gross profit margin by 1.2%. We commenced an analysis into the root cause of the tile warping issue in late 2018 and concluded that a regulatory change in late 2017 affected the composition of the tiles, resulting in increased moisture absorption rates. We believe we have identified a permanent solution to this issue. Increases in depreciation and amortization during 2018 included in cost of goods sold reflects investments in manufacturing equipment in 2017.

For 2017, gross profit increased to $85.5 million, or 37.7% of revenue, from $79.1 million or 39.3% of revenue for 2016. Adjusted Gross Profit increased to $94.2 million or 41.6% of revenue in 2017 from $86.5 million or 42.9% of revenue in 2016. The increase in gross profit and Adjusted Gross Profit was due to the previously explained increase in revenue. The decrease in gross profit margin and Adjusted Gross Profit Margin was due to higher aluminum costs, lower margins on increased installation revenue, and higher depreciation related to investment in manufacturing equipment.

Adjusted Net Income for the Three and Six Months Ended June 30, 2019 and 2018

The following table presents a reconciliation for the second quarter and year-to-date results of 2019 and 2018 of Adjusted Net Income (loss) to our net income (loss), which is the most directly comparable GAAP measure for the periods presented:

	Three Months Ended June 30,		Six Months Ended June 30,	
	2019	2018	2019	2018
	($ in thousands)			
Net Income (Loss) for the Period	$ 2,611	$ 770	$ (2,654)	$ 3,840
Add back (deduct):				
Stock-based compensation fair value adjustments	(1,922)	—	3,761	
Reorganization Expense	—	764	2,639	2,410
Tax Impact of Adjustments	—	(207)	(712)	(651)
Adjusted Net Income (Loss)	$ 689	$ 1,327	$ 3,034	$ 5,599

During the third quarter of 2018, we determined that we no longer qualified as a Foreign Private Issuer ("FPI") as of June 30, 2018, under the rules of the US Securities and Exchange Commission ("SEC"). As a result, until such time that we requalify as a FPI or register our offers and sales of securities with the SEC, equity issuances including those under our Amended and Restated Incentive Stock Option Plan ("Option Plan") are subject to a one-year holding period. To minimize any undue effects on employees, our board of directors approved the availability of a cash surrender feature for certain options until we requalify as a FPI is returned or we register our shares with the SEC. Accordingly, we currently account for the fair value of outstanding stock-options at the end of the reporting period as a liability, with changes in the liability recorded through net income as a stock-based compensation fair value adjustment. Adjusted Net Income for the three and six months ended June 30, 2019, removes the stock-based fair value adjustment, because this accounting charge is material and not comparable to prior year charges. Upon the listing of our common shares on Nasdaq, we expect to revert to equity accounting under the Option Plan without quarterly fair value adjustments because we will no longer have a cash surrender feature.

Adjusted Net Income for the Year Ended December 31, 2018, 2017 and 2016

The following table presents a reconciliation for 2018, 2017 and 2016 of Adjusted Net Income (loss) to our net income (loss), which is the most directly comparable GAAP measure for the periods presented:

	Year Ended December 31,		
	2018	2017	2016
	($ in thousands)		
Net Income (Loss) for the Period	$ 5,550	$(7,725)	$3,899
Add back (deduct):			
Impairment Expense	8,680	—	—
Reorganization Expense	7,380	1,143	—
Tax Impact of Adjustments	(4,336)	(309)	—
Adjusted Net Income (Loss)	$17,274	$(6,891)	$3,899

Results of Operations

Three and Six Months Ended June 30, 2019, Compared to Three and Six Months Ended June 30, 2018

	Three Months Ended June 30,			Six Months Ended June 30,		
	2019	2018	% Change	2019	2018	% Change
	($ in thousands)					
Revenue	$64,091	$62,480	3%	$129,152	$126,328	2%
Gross Profit	$24,421	$23,331	5%	$ 48,025	$ 49,305	(3)%
Gross Profit Margin	38.1%	37.3%	2%	37.1%	39.0%	(5)%
Operating Expenses						
Sales and Marketing	$ 9,543	10,102	(6)%	17,330	$ 20,174	(14)%
General and Administrative	6,856	7,789	(12)%	13,753	14,422	(5)%
Operations Support	2,870	1,897	51%	5,352	3,996	34%
Technology and Development	2,046	1,035	98%	4,163	2,126	96%
Stock-based compensation	(1,655)	564	NA	4,792	1,135	322%
Reorganization	—	764	(100)%	2,639	2,410	10%
Total Operating Expenses	$19,660	$22,151	(11)%	$ 48,029	$ 44,263	9%
Operating Income (Loss)	$ 4,761	$ 1,180	303%	$ (4)	$ 5,042	NA
Operating Margin	7.4%	1.9%	289%	0%	4.0%	(100)%

<u>Revenue</u>

Revenue reflects sales to our Distribution Partners for resale to their clients and, in limited circumstances, our direct sales to clients. Our revenue is generally affected by the timing of when orders are executed, particularly large orders, which can add variability to our financial results and shift revenue between quarters. The following table sets forth the contribution to revenue of our DIRTT Solutions and related offerings.

	Three Months Ended June 30,			Six Months Ended June 30,		
	2019	2018	% Change	2019	2018	% Change
	($ in thousands)					
Product	$54,886	$54,626	—	$111,835	$110,346	1%
Transportation	5,856	5,328	10%	12,215	10,184	20%
Licenses	531	598	(11)%	1,063	1,129	(6)%
Total Product Revenue	$61,273	$60,552	1%	$125,113	$121,658	3%
Installation and other services	2,818	1,928	46%	4,039	4,670	(14)%
Total	$64,091	$62,480	3%	$129,152	$126,328	2%

Product and associated transportation revenue increased in the three months ended June 30, 2019 by $0.7 million or 1% compared to the same period of 2018. As discussed in "—Outlook," we believe the distraction from significant management changes during 2018 adversely affected 2018 project bidding efforts quoting levels and thus 2019 sales to a greater extent than we previously expected. The recent enhancements to our organizational structure and senior management team have not yet positively affected sales due to, we believe, our long sales cycle. For the six months ended June 30, 2019, product and transportation revenue increased by $3.5 million or 3% compared to the same period of 2018. Revenue for the six months of 2018 included an estimated $4.0 million to $7.0 million (3% to 5% of year-to-date 2018 revenue) of projects that were delayed from the fourth quarter of 2017 to the first quarter of 2018 as a result of significant hurricanes in the southern United States affecting 2017 project schedules.

Installation revenue increased $0.9 million for the three months ended June 30, 2019 compared to the same period in 2018 and decreased $0.6 million for the six months ended June 30, 2019 compared to the same period in 2018. The changes in installation revenue are primarily due to the timing of projects. Except under certain circumstances, our Distribution Partners perform installation services rather than us, and accordingly, we are not anticipating significant growth in this revenue stream.

Our success is partly dependent on our ability to profitably develop our Distribution Partner network to expand our market penetration and ensure best practices are shared across local markets. We had 92 Distribution Partners at June 30, 2019. Our clients, as serviced primarily through our Distribution Partners, exist within a variety of industries, including healthcare, education, financial services, government and military, manufacturing, non-profit, energy, professional services, retail, technology and hospitality.

We periodically analyze our revenue growth by vertical markets in the defined markets of commercial, healthcare, government and education. The following table presents our product and transportation revenue by vertical market.

	Three Months Ended June 30,			Six Months Ended June 30,		
	2019	2018	% Change	2019	2018	% Change
			($ in thousands)			
Commercial	$39,189	$39,519	(1)%	81,338	77,904	4%
Healthcare	10,346	11,990	(14)%	23,260	21,761	7%
Government	4,313	4,543	(5)%	8,412	12,774	(34)%
Education	6,894	3,902	77%	11,040	8,090	36%
License fees from distribution partners	531	598	(11)%	1,063	1,129	(6)%
Total Product Revenue	$61,273	$60,552	1%	$125,113	$121,658	3%
Installation and other services	$ 2,818	$ 1,928	46%	4,039	4,670	(14)%
Total Revenue	$64,091	$62,480	3%	$129,152	$126,328	2%

	Three Months Ended June 30,			Six Months Ended June 30,		
	2019	2018	% Change	2019	2018	% Change
			(in %)			
Commercial	65	65	—	65	64	2
Healthcare	17	20	(15)	19	18	6
Government	7	8	(13)	7	11	(36)
Education	11	7	57	9	7	29
% of Product Revenue[(1)]	100	100	—	100	100	—

(1) excluding licenses from distribution partners

Revenue growth of 3% in the three months ended June 30, 2019 over the prior year period was driven primarily by increased sales in the education sector, reflecting a higher number of post-secondary school projects in the quarter. This increase, combined with consistent revenue in the commercial sector and increased installation activity, was partially offset by lower healthcare sales, which reflect the timing of projects, and modest reductions in government sales. For the six months ended June 30, 2019, revenue grew by 2% compared to the prior year period, with continued growth in the commercial, healthcare and education sectors, partially offset by the completion of a major government project in 2018 that was not replicated in 2019, and reduced installation activity.

Revenue continues to be derived almost exclusively from projects in North America and predominantly from the United States, with periodic international projects from North American Distribution Partners. The following table presents our revenue dispersion by geography.

	Three Months Ended June 30,			Six Months Ended June 30,		
	2019	2018	% Change	2019	2018	% Change
		($ in thousands)			($ in thousands)	
Canada	$ 8,771	$ 8,214	7%	$ 15,839	$ 18,371	(14)%
United States	55,320	53,633	3%	113,313	107,094	6%
International	—	633	(100)%	—	863	(100)%
Total	$64,091	$62,480	3%	$129,152	$126,328	2%

Sales & Marketing Expenses

Sales and marketing expenses decreased $0.6 million to $9.5 million for the three months ended June 30, 2019, from $10.1 million for the three months ended June 30, 2018. Sales and marketing expenses decreased $2.8 million to $17.3 million for the six months ended June 30, 2019, from $20.2 million for the six months ended June 30, 2018. Included in sales and marketing expenses in the three months ended June 30, 2019 was $1.3 million of consulting costs related to the Sales & Marketing Plan. These costs were offset by continued reductions in travel, meals and entertainment costs and cost reductions related to trade shows. None of these expense reductions are expected to materially affect our sales revenue.

Our sales and marketing efforts in 2019 are largely concentrated on establishing the appropriate sales organization, significantly improving our marketing approach and driving returns on sales and marketing expenditures. In April 2019, we engaged an internationally recognized consulting firm to evaluate our current sales and marketing approach and assist in the development of action plans necessary to drive accelerated growth. Along with the incremental costs associated with this consulting engagement in 2019, we expect sales and marketing expense to increase in conjunction with higher sales due to higher commissions as well as investment in sales generating initiatives. Our ongoing focus is to continue to control costs by emphasizing return on investment on our sales and marketing expenditures.

General and Administrative Expenses

General and administrative ("G&A") expenses decreased $0.9 million to $6.9 million for the three months ended June 30, 2019 from $7.8 million for the three months ended June 30, 2018. In the second quarter of 2018, we incurred $0.9 million related to proxy defense costs which did not reoccur in 2019. This reduction was partially offset by $0.4 million of costs related to the U.S. Listing incurred in the second quarter of 2019.

G&A expenses decreased $0.7 million to $13.8 million for the six months ended June 30, 2019 from $14.4 million for the six months ended June 30, 2018. In 2018, we incurred $1.4 million related to proxy defense costs which did not reoccur in 2019. This reduction was partially offset by $1.1 million of costs related to the U.S. Listing incurred in the second quarter of 2019.

Operations Support Expenses

Operations support expenditures include the fixed costs associated with delivery and project management of our DIRTT Solutions, as well as the operating costs of our manufacturing facilities. Operations support expenses increased $1.0 million to $2.9 million for the three months ended June 30, 2019, from $1.9 million for the three months ended June 30, 2018. The increase is due to $0.7 million of consultant costs incurred to assist with the evaluation of current operations and to assist with the rectification of the tile warping issue and increases in personnel costs due to increased headcount and an increased provision for variable compensation.

Operations support costs increased $1.4 million to $5.4 million for the six months ended June 30, 2019, from $4.0 million for the six months ended June 30, 2018, due to $1.1 million of consultant costs incurred for the same evaluations discussed for the three-month period as well as increases in personnel costs.

Technology and Development Expenses

Technology and development expenses relate to non-capitalizable costs associated with our product and software development teams and are primarily comprised of salaries and benefits of technical staff.

Technology and development expenses increased $1.0 million to $2.0 million for the three months ended June 30, 2019, compared to $1.0 million for the three months ended June 30, 2018. Technology and development expenses increased $2.1 million to $4.2 million for the six months ended June 30, 2019, compared to $2.1 million for the six months ended June 30, 2018. These increases are due to a $0.5 million and $1.6 million decrease in capitalized salaries for the three and six months ended June 30, 2019, respectively, as the current mix of projects undertaken by us included a higher portion of efforts related to business process improvements that were not eligible for capitalization. Additionally, we have accrued $0.3 million and $0.5 million higher provision for variable compensation in the three and six months ended June 30, 2019, respectively, and $0.3 million and $0.5 million additional salary and benefit costs were classified as cost of sales of technical services during the three and six months ended June 30, 2018.

Stock-Based Compensation

Stock-based compensation reflected a $1.7 million recovery for the three months ended June 30, 2019, compared to an expense of $0.6 million for the same period of 2018, reducing the expense to $4.8 million for the six months ended June 30, 2019, compared to $1.1 million for the same period of 2018. We recorded fair value adjustments on cash settled stock options during the three and six months ended June 30, 2019, respectively, with no fair value adjustment required in the respective prior year periods.

Reorganization Expenses

We incurred $2.6 million for the first quarter of 2019 and no material additional reorganization costs in the second quarter of 2019, compared to $0.8 million and $2.4 million in the three and six months ended June 30, 2018, respectively. These costs included severance payments, and related legal and consulting costs, associated with management and organizational changes and legal and consulting costs related to these changes. No further material expenditures are anticipated in 2019.

Income Tax

Alberta's general provincial tax rate was decreased on June 28, 2019 from 11.5% to 11% for the second half of 2019, to 10% for 2020, to 9% for 2021 and to 8% thereafter. As a result of the rate change, we reduced our deferred tax asset by $0.9 million, with a corresponding deferred income tax expense recorded in the second quarter of 2019.

The provision for income taxes is comprised of federal, state, provincial and foreign taxes based on pre-tax income. Income tax expense for the three months ended June 30, 2019, inclusive of the previously noted charge associated with the Alberta tax rate change, was $1.7 million, compared to $0.9 million for the same period of 2018, and income tax expense for the six months ended June 30, 2019 was $1.7 million, as compared to $2.4 million for the same period of 2018. As at June 30, 2019, we had C$39.2 million of loss carry-forwards in Canada and none in the United States, compared to C$43.6 million in Canada and none in the United States on December 31, 2018. These loss carry-forwards will begin to expire in 2030.

Net Income (loss)

Net income was $2.6 million or $0.03 per share in the second quarter of 2019, compared to net income of $0.8 million or $0.01 per share for the second quarter of 2018. The variances are the result of changes in gross margin and operating expenses as described above. Net income for the three months ended June 30, 2019 includes a $1.7 million recovery in stock-based compensation, compared to a $0.6 million expense in the same period of 2018, and $nil of reorganization costs for the three months ended June 30, 2019, compared to $0.8 million in the same period of 2018.

On a year-to-date basis, net loss was $2.7 million or $0.03 net loss per share in the first six months of 2019, compared to net income of $3.8 million or $0.05 net income per share for the first six months of 2018. The variances are the result of changes in gross margin and operating expenses as described above. Net income for the six months ended June 30, 2019 includes a $4.8 million expense in stock-based compensation, compared to $1.1 million in the same period of 2018, and $2.6 of reorganization costs for the six months ended June 30, 2019, compared to $2.4 million expense in the same period of 2018.

Year Ended December 31, 2018, Compared to Year Ended December 31, 2017

	Year Ended December 31,		
	2018	2017	% Change
	($ in thousands)		
Revenue	$274,681	$226,539	21%
Gross Profit	$107,009	$ 85,489	25%
Gross Profit Margin	39.0%	37.7%	3%
Operating Expenses			
Sales and Marketing	$ 40,731	$ 46,355	(12)%
General and Administrative	30,861	29,383	5%
Operations Support	8,960	8,234	9%
Technology and Development	4,703	6,875	(32)%
Reorganization	7,380	1,143	546%
Impairments	8,680	—	NA
Total Operating Expenses	$101,315	$ 91,990	10%
Operating Income (Loss)	$ 5,694	$ (6,501)	NA
Operating Margin(1)	2.1%	(2.9)%	NA

(1) Operating income (loss) divided by revenue.

Revenue

The following table sets forth the contribution to revenue of our DIRTT Solutions and related offerings.

	Year Ended December 31,		
	2018	2017	% Change
	($ in thousands)		
Product	$240,482	$195,676	23%
Transportation	24,552	19,519	26%
Licenses	1,400	1,021	37%
Total Product Revenue	$266,434	$216,216	23%
Installation and other services	8,247	10,323	(20)%
Total	$274,681	$226,539	21%

Revenue increased in 2018 by $48.1 million to $274.7 million, or 21%, compared to $226.5 million for 2017. The increase was attributable to an increase in product and associated transportation revenue from product shipments in the healthcare market, combined with continued growth in commercial markets. Revenue for installations declined by $2.1 million in 2018 from 2017 due to reduced levels of installation with a major client. Installation services are typically outsourced to third parties through our Distribution Partners. Installation revenue therefore varies from time to time and, over time, is expected to decrease as a percentage of overall revenue as we expand our network of Distribution Partners. Revenue in 2017 also decreased as record-breaking hurricanes in the year delayed certain project schedules, with a reduction of our fourth-quarter revenue in 2017 estimated to be between $4.0 million and $8.0 million, which contributed to the revenue increase in 2018.

Our success is partly dependent on our ability to profitably develop our Distribution Partner network to expand our market penetration and ensure best practices are shared across local markets. We had 97 Distribution Partners in 2018, as compared to 95 Distribution Partners in 2017.

We periodically review our revenue growth by vertical markets in the defined markets of commercial, healthcare, government and education. The following table presents our product and transportation revenue by vertical market.

	Year Ended December 31,		
	2018	2017	% Change
		($ in thousands)	
Commercial	$163,199	$142,494	15%
Healthcare	60,748	38,455	58%
Government	21,477	18,927	13%
Education	19,610	15,319	28%
License fees from distribution partners	1,400	1,021	37%
Total Product Revenue	$266,434	$216,216	23%
Installation and other services	8,247	10,323	(20)%
Total Revenue	$274,681	$226,539	21%

	Year Ended December 31,		
	2018	2017	% Change
		(in %)	
Commercial	62	66	(6)
Healthcare	23	18	28
Government	8	9	(11)
Education	7	7	—
% of Product Revenue(1)	100	100	

(1) Excluding license fees from distribution partners

In 2018, we experienced strong growth in the healthcare market as a result of successful sales and business development activities and increasing acceptance of our DIRTT Solutions. Year-over-year healthcare sales increased 58% in 2018 over 2017, and proportionally as a percentage of product and transportation revenue, reflecting continued penetration into the sector and the positive effect of certain large projects.

The following table presents our revenue dispersion by geography.

	Year Ended December 31,		
	2018	2017	% Change
		($ in thousands)	
Canada	$ 41,153	$ 35,035	17%
United States	232,035	190,245	22%
International	1,493	1,259	19%
Total	$274,681	$226,539	21%

Sales & Marketing Expenses

Sales and marketing expenses decreased to $40.7 million in 2018 from $46.4 million in 2017. The decrease was primarily due to $6.1 million targeted reductions in non-revenue generating marketing and tradeshow expenses and associated travel, meals and entertainment costs, and the elimination in 2018 of $1.3 million incurred in 2017 on a collaborative project built to showcase DIRTT Solutions in the prior Executive Chairman's primary residence. These cost reductions were partially offset by a $1.6 million increase in commission expense due to increases in orders.

General and Administrative Expenses

General and administrative expenses increased to $30.9 million in 2018 from $29.4 million in 2017. In 2018, we incurred $1.4 million of one-time advisor and other costs associated with activist defense and $0.7 million of board, advisor and other costs associated with the work of a special committee of the Board of Directors in response to an unsolicited and unsuccessful acquisition bid by a third party. Stock-based compensation expense included in general and administrative expense increased $1.1 million as a modification to the awards, allowing them to be cash-settled, resulted in a higher 2018 charge. Depreciation and amortization increased $0.6 million in 2018 due to the expense attributable to prior-year office equipment and leasehold additions. Additional increases in 2018 also included additions to the Company's variable pay provision as a result of improved corporate performance. These increases were offset by reductions in non-essential travel and entertainment, office and other expenditures, recognized through improvements in process and increased focus on cost control. In 2017, we also incurred one-time expenses of $1.0 million related to a collaborative project built to showcase DIRTT Solutions in the prior Executive Chairman's primary residence.

Operations Support Expenses

Operations support expenses increased to $9.0 million in 2018 from $8.2 million in 2017 as a result of increases in personnel costs year-on-year put in place to handle higher sales activity levels.

In the fourth quarter of 2018, we closed our Kelowna plant in British Columbia, with associated power and network production reallocated to our other existing facilities, and we consolidated our Calgary distribution center with the Calgary aluminum fabrication facility. Management expects operation support expenses to increase in general with revenue but to decrease as a percentage of revenue as efficiency and productivity are improved over time.

Technology and Development Expenses

Technology and development expenses were $4.7 million in 2018 compared to $6.9 million in 2017. Prior-year expenditures included costs associated with the DIRTT for Life and DIRTT Timber product lines that were curtailed in 2018, which resulted in technology and development costs decreasing by $2.2 million from 2017 to 2018.

Reorganization Expenses

Reorganization expenses in 2018 were $7.4 million compared to $1.1 million in 2017. These expenses include severance payments associated with management and organizational changes to the Company, retention bonuses paid to key employees, a one-time payment to terminate a benefit program of the Company, and legal and consulting costs related to these changes. Management currently anticipates $2.6 million of reorganization charges in the first quarter of 2019 and no material reorganization expenditures outside of the normal course of operations thereafter.

Impairment Expenses

DIRTT Timber

During 2018, management decided to shift from the early stage development of its DIRTT Timber market to a commercialized approach focused on large, standalone timber projects and as a tie-in to our other DIRTT Solutions. Management concluded that this strategy required significantly less timber capacity than existed and took steps to right-size its timber capacity by the end of 2018. Management determined these decisions to be an indicator of impairment of the assets of the DIRTT Timber line.

During 2018, management performed an assessment of the carrying values of DIRTT Timber’s property, plant and equipment (“PP&E”). To determine the impairment of the DIRTT Timber assets, the net book value of the assets was evaluated against the fair value of the assets. The fair value of the DIRTT Timber assets reflects current projected sales for timber projects on a standalone basis and the pull-through impact to other DIRTT Solutions. In its evaluation, management determined it was unable to reliably quantify the pull-through impact of timber on other DIRTT Solutions. The equipment related to the timber market was custom built for DIRTT, and there is no active market for resale. Therefore, the fair value was determined to be management’s estimate of scrap value for the specialized assets and an estimated resale value for less specialized assets that cannot be redeployed for other DIRTT Solutions. Management estimated the expected resale values based on the current market and industry knowledge. The fair value of the timber assets was estimated to be $1.1 million. This assessment resulted in an impairment charge of $6.1 million during 2018.

Leasehold and Other Assets

During 2018, management reviewed the facilities used in our operations and the corresponding leases in place to determine whether assets were impaired or whether the costs of meeting lease obligations exceeded the economic benefits expected to be received. The outcome of this review was the consolidation of our production in Kelowna, British Columbia, into other plants, the consolidation of a distribution center in Calgary, Alberta, into an existing facility, and discontinued use of other locations that were not considered necessary in our operations. In 2018, we recognized a lease exit liability of $0.5 million related to these facilities, net of $1.0 million of estimated recoveries from subleases.

The lease exit liability represents the present value of the difference between the minimum future lease payments that we are obligated to make under the non-cancellable operating lease contract and any estimated sublease recoveries. This estimate may vary as a result of changes in estimated sublease recoveries. The lease exit liability is estimated to be settled in periods up to and including the year 2023.

In connection with management's review of our facilities, certain leasehold assets were identified as no longer having future value. These assets related to leases of locations where activity is being relocated, as well as projects in process that were eliminated. These leasehold and other assets represented assets with a carrying value of $2.0 million in 2018. As these assets cannot be resold and there is no future use for the assets, the entire carrying amount was impaired and a corresponding impairment charge of $2.0 million was recorded.

Foreign Exchange

Foreign exchange gains were $3.2 million in 2018, primarily because of the impact of a weakening of the Canadian dollar on the revaluation of U.S. dollar-denominated intercompany receivables due from our U.S. subsidiary. In 2017, we recorded $0.7 million of foreign exchange losses primarily as a result of the impact of a strengthening Canadian dollar on revaluation of intercompany accounts receivables.

Translation adjustments recorded in other comprehensive income were a $10.0 million loss in 2018 and a $7.4 million gain in 2017. These translation adjustments occurred on the translation of our Canadian entities' net asset positions into our U.S. dollar reporting currency at period end and were affected by the weakening of the Canadian dollar in 2018 and the strengthening of the Canadian dollar in 2017.

Income Tax

Provision for income taxes is comprised of federal, state or provincial, local and foreign taxes based on pre-tax income. Income tax expense for 2018 was $3.3 million, compared to $0.5 million for 2017. The increase in income taxes reflects year-over-year changes in temporary differences partially offset by the impact of higher taxable income. The income tax expense incurred in 2017 reflected the impact of the reduction to the U.S. federal tax rate from 35% to 21% on deferred income taxes.

In 2018, DIRTT had C$43.6 million of non-capital loss carry-forwards in Canada and none in the United States, compared to C$48.0 million and $4.2 million, respectively, in 2017. These loss carry-forwards will begin to expire in 2031. The change in the loss carry-forward from year to year is due to differences in accounting and tax treatments of certain expenses and realized foreign currency gains on intercompany funding.

Net Income (loss)

Net income increased to $5.6 million ($0.07 per share) in 2018, from a net loss of $7.7 million ($0.09 loss per share) for 2017. This increase was a result of higher revenue, and a $3.2 million foreign currency gain, which offset an $9.3 million increase in operating costs. Operating costs for 2018 included the impact of $8.7 million in impairment expenses and $7.4 million of reorganization costs, compared to $1.1 million in reorganization costs for 2017. Excluding these costs, Adjusted Net Income was $17.3 million or $0.20 per share in 2018, an increase of $24.2 million from a $6.9 million loss ($0.08 loss per share) in 2017.

Year Ended December 31, 2017, Compared to Year Ended December 31, 2016

	Year Ended December 31,		
	2017	2016	% Change
		($ in thousands)	
Revenue	$226,539	$201,364	13%
Gross Profit	$ 85,489	$ 79,144	8%
Gross Profit Margin	37.7%	39.3%	(4)%
Operating Expenses	—		
Sales and Marketing	$ 46,355	$ 35,079	32%
General and Administrative	29,383	23,006	28%
Operations Support	8,234	8,194	1%
Technology and Development	6,875	5,835	18%
Reorganization	1,143	—	NA
Total Operating Expenses	$ 91,990	$ 72,114	28%
Operating Income (Loss)	$ (6,501)	$ 7,030	NA
Operating Margin[1]	(2.9)%	3.5%	NA

(1) Operating income (loss) divided by revenue.

Revenue

The following table sets forth the contribution to revenue of our DIRTT Solutions and related offerings.

	Year Ended December 31,		
	2017	2016	% Change
	($ in thousands)		
Product	$195,676	$178,347	10%
Transportation	19,519	17,583	11%
Licenses	1,021	552	85%
Total Product Revenue	$216,216	$196,482	10%
Installation and other services	10,323	4,882	111%
Total	$226,539	$201,364	13%

Revenue increased in 2017 by $25.2 million to $226.5 million, or 13%, compared to $201.4 million for 2016. The increase was attributable to an increase in activity from small- and medium-sized projects across a range of industries, as well as a $4.6 million increase in installation revenue. 2017 revenue was reduced because record-breaking hurricanes in the year delayed certain project schedules, with a reduction of our fourth quarter revenue in 2017 estimated to be between $4.0 million and $8.0 million.

Our success is partly dependent on our ability to profitably develop our Distribution Partner network to expand our market penetration and ensure best practices are shared across local markets. We had 95 Distribution Partners in 2017, as compared to 90 Distribution Partners in 2016.

The following table presents our product and transportation revenue growth by industry vertical market.

	Year Ended December 31,		
	2017	2016	% Change
	($ in thousands)		
Commercial	$142,494	$130,590	9%
Healthcare	38,455	32,626	18%
Government	18,927	16,819	13%
Education	15,319	15,895	(4)%
License fees from distribution partners	1,021	552	85%
Total Product Revenue	$216,216	$196,482	10%
Installation and other services	10,323	4,882	102%
Total Revenue	$226,539	$201,364	13%

(1) Included in Product Revenue on statements of operations.

	Year Ended December 31,		
	2017	2016	% Change
	(in %)		
Commercial	66	66	—
Healthcare	18	17	6%
Government	9	9	—
Education	7	8	(13)%
% of Product Revenue(1)	100	100	

(1) Excluding license fees from distribution partners

In 2017, we experienced $5.8 million growth in the healthcare market from $32.6 million to $38.5 million, or a 18% increase, over 2016, reflecting continued penetration into the vertical and increased acceptance of DIRTT Solutions within the healthcare industry.

Revenue continued to be derived almost exclusively from projects in North America and predominantly from the United States, with periodic international projects for North American Distribution Partners.

	Year Ended December 31,		
	2017	2016	% Change
	($ in thousands)		
Canada	$ 35,035	$ 26,576	32%
United States	190,245	174,447	9%
International	1,259	341	269%
Total	$226,539	$201,364	13%

Sales & Marketing Expenses

Sales and marketing expenses increased to $46.4 million in 2017 from $35.1 million in 2016. The increase was primarily due to a $4.8 million increase in commissions, salaries and benefits related to increased sales and marketing activities; $4.6 million of increased tradeshow, travel, and meals and entertainment costs, largely related to the Connext sales conference and our fall Distribution Partner meeting; and $1.3 million of sales and marketing costs incurred in 2017 on a collaborative project built to showcase DIRTT Solutions in our former Executive Chairman's primary residence.

General and Administrative Expenses

General and administrative expenses increased to $29.4 million in 2017 from $23.0 million in 2016. This increase is attributable to increases in salaries, benefits and professional fees. We also incurred a one-time expense of $1.0 million in 2017 related to costs incurred on a collaborative project built to showcase DIRTT Solutions in the former Executive Chairman's primary residence.

Operations Support Expenses

Operations support expenses include the fixed overhead costs associated with delivery of our DIRTT Solutions and project management. There was no significant change in operations support expenses from 2017 to 2018.

Technology and Development Expenses

Technology and development expenses relate to non-capitalizable costs associated with our product and software development teams and are primarily comprised of salaries and benefits of technical staff. Technology and development expenses were $6.9 million for 2017, compared to $5.8 million for the same period in 2016. The increase in costs relates to development costs associated with our timber and residential lines of business.

Reorganization Expenses

Reorganization expenses in 2017 were $1.1 million. These expenses include severance and associated legal costs incurred during 2017 related to certain management changes in early 2018. No reorganization expenses were incurred in 2016.

Foreign Exchange

Foreign exchange losses were $0.7 million in 2017, as compared to losses of $0.4 million in 2016, primarily as a result of the impact of the strengthening of the Canadian dollar on the revaluation of U.S. dollar-denominated intercompany receivables due from our U.S. subsidiaries.

Translation adjustments recorded in other comprehensive income were a $7.4 million gain in 2017 and a $3.0 million gain in 2016. These translation adjustments occurred on the translation of our Canadian entities' net asset positions into our U.S. dollar reporting currency at period end and were impacted by the strengthening of the Canadian dollar in both fiscal years.

Income Tax

Provision for income taxes is comprised of federal, state or provincial, local and foreign taxes based on pre-tax income. Income tax expense for 2017 was $0.5 million, compared to $2.9 million for 2016. The decrease in income taxes reflects taxable income being in a loss position in 2017, offset by the impact of the reduction to the U.S. federal tax rate from 35% to 21% on deferred income taxes in 2017.

Net Income (loss)

Net loss for 2017 was $7.7 million ($0.09 loss per share), compared to net income of $3.9 million ($0.05 per share) for 2016. This decrease was a result of increases in operating expenses exceeding increases in gross profit.

Summary of Quarterly Results

	Q2 2019(1)	Q1 2019(1)	Q4 2018(2)	Q3 2018	Q2 2018	Q1 2018	Q4 2017	Q3 2017
	($ in thousands, except per share amount and percentages)							
Revenue	$ 64,091	$ 65,061	$ 74,440	$73,913	$62,480	$63,848	$58,270	$67,068
Gross profit	24,421	23,604	27,621	30,083	23,331	25,976	21,052	26,494
Gross profit margin	38.1%	36.3%	37.1%	40.7%	37.3%	40.7%	36.1%	39.5%
Adjusted Gross Profit Margin(3)	42.1%	39.6%	40.1%	43.4%	40.6%	43.7%	39.5%	42.5%
Net income (loss)(1)(2)	2,611	(5,265)	3,143	(1,433)	770	3,070	(5,696)	2,840
Net income (loss) per share – basic and diluted(1)(2)	0.03	(0.06)	0.04	(0.02)	0.01	0.04	(0.07)	0.03
Adjusted EBITDA(3)	5,605	6,986	12,808	13,062	6,612	10,391	(1,048)	7,629
Adjusted EBITDA Margin(3)	8.7%	10.8%	17.2%	17.7%	10.6%	16.3%	(1.8)%	11.4%

(1) Net income includes impact of $6.4 million stock-based compensation charge relating primarily to the impact of fair valuing cash settled options.
(2) Impairment expenses included in Q3 2018 and Q4 2018 are $6.1 million and $2.6 million, respectively.
(3) See "– Non-GAAP Financial Measures."

The construction industry has historically seen seasonal slowdowns related to winter weather conditions and holiday schedules in the fourth and first quarters. Our business has generally followed this trend with a slight time lag, leading to stronger sales in the second half of the year versus the first half. During the fourth quarter of 2017, the extreme weather conditions experienced in the United States negatively impacted the delivery of projects.

Due to the fixed nature of some of our manufacturing costs, periods of higher revenue volume tend to generate higher gross profit and operating income. Quarters that contain consistent monthly manufacturing volumes tend to generate higher gross profit than those where manufacturing levels vary significantly from month to month. Product and service revenue mix also tends to impact gross profit, as simplistic product and service revenue mix can result in lower gross profit, while "full solution" or comprehensive product and service revenue mixes tend to have higher gross profit.

Liquidity and Capital Resources

Cash and cash equivalents at June 30, 2019 totaled $58.7 million, an increase of $5.3 million from December 31, 2018. On January 31, 2019, we repaid $5.6 million of long-term debt outstanding with cash on hand, without penalty. In July 2019, we entered into a C$50.0 million revolving operating facility with the Royal Bank of Canada. Draw-downs under the RBC Credit Facility are available in both Canadian and U.S. dollars. This Credit Facility replaced the $18.0 million revolving operating facility with Comerica Bank that expired on June 30, 2019.

Capital expenditures decreased by $2.0 million and $3.6 million for the three and six months ended June 30, 2019, respectively, of which $0.4 million and $1.4 million, respectively relates to a reduction in capital expenditures on internally generated software development. Additionally, a portion of the current development activities of the ICE Software development team include projects related to business process improvements which are not eligible for capitalization.

Management believes that existing cash and cash equivalents and cash flows from operations will be sufficient to support ongoing working capital and capital expenditure requirements for at least the next twelve months. Our future capital requirements will depend on many factors, including growth rate, the continued expansion of sales and marketing activities and the introduction of new solutions, software and product enhancements. To the extent existing cash and cash equivalents and cash flows from operations are not sufficient to fund future activities, we may seek to raise additional funds through equity or debt financings. If additional funds are raised through the incurrence of indebtedness, such indebtedness may have rights that are senior to holders of our equity securities and could contain covenants that restrict operations. Any additional equity financing may be dilutive to our existing shareholders.

Since inception, we have financed operations primarily through cash flows from operations, long-term debt, and the sale of equity securities. Cash is primarily used to fund operations and capital expenditures. Over the past several years, revenue has increased significantly from year to year and, as a result, cash flows from account receivable collections have increased. However, operating expenses have also increased as we reinvested capital in growing the business. Our operating cash requirements may increase in the future as management continue to invest in the strategic growth of the Company.

Three and Six Months Ended June 30, 2019 and 2018

The following table summarizes our consolidated cash flows for the three and six months ended June 30, 2019 and 2018:

	Three Months Ended June 30,		Six Months Ended June 30.	
	2019	2018	2019	2018
	($ in thousands)			
Net cash flows provided by (used in) operating activities	$ 7,480	$ (367)	$ 14,881	$ (7,722)
Cash used in investing activities	(2,966)	(5,391)	(5,070)	(8,399)
Cash provided by (used in) financing activities	11	488	(5,545)	(562)
Effect of foreign exchange on cash and cash equivalents	152	(347)	1,058	(1,299)
Net increase (decrease) in cash and cash equivalents	4,677	(5,617)	5,324	(17,982)
Cash and cash equivalents, beginning of period	$ 54,059	$ 51,119	$ 53,412	$ 63,484
Cash and cash equivalents, end of period	$ 58,736	$ 45,502	$ 58,736	$ 45,502

Operating Activities

Net cash flows provided by operating activities increased to $7.5 million in the three months ended June 30, 2019, from $0.4 million net cash flows used in operating activities in the same period of 2018. Net cash flows from operations before changes in operating assets and liabilities was $2.4 million (calculated as $2.6 million of net income less $0.2 million of non-cash adjustments) in the second quarter of 2019, compared to $4.3 million (calculated as $0.8 million of net income plus $3.6 million of non-cash adjustments) in the second quarter of 2018. Non-cash adjustments include, among other things, depreciation and amortization expense, stock-based compensation net of $2.6 million of cash paid on surrenders of stock options, and unrealized foreign exchange impacts. The increase in cash flows from operations is largely due to an increase in collections on accounts receivable balances. This was offset by an increase in foreign exchange loss in the second quarter of 2019 as compared to the second quarter of 2018.

Net cash flows provided by operating activities increased to $14.9 million in first half of 2019 from $7.7 million net cash flows used in operating activities in the first half of 2018. Net cash flows from operations before changes in operating assets and liabilities was $6.0 million (calculated as $2.6 million of net loss plus $8.7 million of non-cash adjustments) in the first half of 2019, compared to $11.8 million (calculated as $3.8 million of net income plus $8.0 million of non-cash adjustments) in the first half of 2018. Non-cash adjustments include, among other things, depreciation and amortization expense, stock-based compensation net of $3.4 million of cash paid on surrenders of stock options, and unrealized foreign exchange impacts. The increase in cash flows from operations is largely due to an increase in collections on accounts receivable balances. This was offset by an increase in foreign exchange loss as compared to the first half of 2018.

Investing Activities

We invested $1.8 million and $3.2 million in PP&E in the three and six months ended June 30, 2019, respectively, compared to $3.4 million and $5.3 million during the three and six months ended June 30, 2018, respectively. We invested $1.1 million and $1.6 million on capitalized software during the three and six months ended June 30, 2019, respectively, as compared to $1.4 million and $3.0 million in the during the three and six months ended June 30, 2018, respectively. The reduction is due to the current mix of projects undertaken by the Company and included a higher portion of efforts related to business process improvements that were not eligible for capitalization.

Financing Activities

Net cash from financing activities was $11 thousand for the three months ended June 30, 2019, attributable to funds received on exercise of stock options, compared to $0.5 million for the three months ended June 30, 2018. For the six months ended June 30, 2019 net cash used in financing activities was $5.5 million, as we repaid the balance of $5.6 million on long-term debt outstanding and related interest during the first quarter of 2019. Cash used in financing activities was $0.6 million for the six months ended June 30, 2018.

We currently expect to fund anticipated future investments with available cash. Apart from cash flow from operations, issuing equity and debt has been our primary source of capital to date. Additional debt or equity financing may be pursued in the future as we may deem appropriate. We may also use debt or pursue equity financing depending on the share price at the time, interest rates, and nature of the investment opportunity and economic climate.

Year Ended December 31, 2018, 2017 and 2016

The following table summarizes our consolidated cash flows for 2018, 2017, and 2016:

	As of December 31,		
	2018	2017	2016
	($ in thousands)		
Net cash flows provided by operating activities	$ 10,065	$ 19,432	$ 11,619
Cash used in investing activities	(13,462)	(19,499)	(17,691)
Cash provided by (used in) financing activities	(3,069)	(9,109)	8,028
Effect of foreign exchange on cash and cash equivalents	(3,606)	2,984	1,676
Net increase (decrease) in cash and cash equivalents	(10,072)	(6,192)	3,632
Cash and cash equivalents, beginning of period	$ 63,484	$ 69,676	$ 66,044
Cash and cash equivalents, end of period	$ 53,412	$ 63,484	$ 69,676

Operating Activities

Net cash flows from operating activities decreased to $10.1 million in 2018 from $19.4 million in 2017 and $11.6 million in 2016. Net cash flows from operations before changes in operating assets and liabilities is calculated as $5.6 million of net income plus $23.5 million of non-cash adjustments in 2018, compared to $7.8 million of net loss plus $12.7 million of non-cash adjustments in 2017, and $3.9 million of net income plus $14.5 million of non-cash adjustments in 2016. Non-cash adjustments include, but are not limited to, depreciation and amortization expense, impairment expenses, stock-based compensation, and unrealized foreign exchange impacts. The 2018 increase is primarily a result of the $21.5 million increase in gross profit on account of increased revenue and a $9.3 million increase in operating expenses (including 7.4 million of reorganization expenses and an $8.7 million non-cash impairment charge). The 2017 decrease is primarily a result of the $6.3 million increase in gross profit being reduced by a $19.8 million increase in operating expenses.

The increase of $19.0 million in operating assets and liabilities in 2018 from 2017 was a result of a year-over-year increase in accounts receivable as a result of fourth quarter 2018 revenue. In particular, revenue in the fourth quarter of 2017 was negatively impacted by project delays caused by hurricanes in the southern United States, resulting in substantially lower receivables outstanding at the end of 2017 compared to 2018. Increases in accounts receivable from 2017 to 2018 were also a result of our discontinuation of an early pay discount in the second quarter of 2018. Accounts receivable increases in 2018 are offset by the related increases in deposits, and rebate accruals (payable to Distribution Partners on receipt of client payments) and increases in accounts payable and accrued liabilities associated with the increased volume of activity. Other liabilities also increased in 2018 by $4.0 million due to liabilities associated with the impacts of providing a cash settlement feature to employee stock options as described below, combined with an increase in legal provisions, reduced by $1.8 million cash payments to settle surrendered stock options. The decrease in working capital in 2017 from 2016 reflected the impact of lower fourth quarter 2017 activity due to the impact of hurricanes, resulting in reduced accounts receivable at the end of 2017 relative to prior years, and an increase in accounts payable resulting from timing of account payments.

During the third quarter of 2018, we determined that we no longer qualified as a FPI as of June 30, 2018, under the rules of the SEC. As a result, until such time that we requalify as an FPI or register our offers and sales of securities with the SEC, equity issuances including those under our Amended and Restated Incentive Stock Option Plan are subject to a one-year hold period. To minimize any undue effects on employees, our Board approved the availability of a cash surrender feature for stock options until FPI status is returned or a registration statement has been declared effective by the SEC, and most of our employees have elected to settle their vested options in cash.

Investing Activities

We invested $8.6 million to PP&E in 2018, compared to $14.4 million in 2017 and $14.5 million in 2016. Spending on PP&E in 2018 included $4.1 million for incremental additions of manufacturing equipment in the manufacturing facilities to increase capacity and quality, $2.5 million in additions to our offices, including enhancements to GLCs, and $2.0 million on computer equipment and software. Comparatively, spending on PP&E in 2017 included $6.1 million for incremental additions of manufacturing equipment in the manufacturing facilities to increase capacity and quality, $5.1 million in additions to our offices, including enhancements to GLCs, and $3.2 million on computer equipment and software. Spending on DIRTT's Timber line of business was included in 2017, which was impaired in 2018.

We invested $5.2 million on capitalized software in 2018, as compared to $5.5 million in 2017, and $4.0 million in 2016. These investments were primarily used to make enhancements to our ICE Software.

The level of investment activities is expected to increase modestly in 2019, as compared to 2018, to ensure that we can sustain our growth safely, while maintaining a high standard of quality. Management believes that our aluminum facilities have capacity to sustain current levels of growth in the near-term, and as discussed in "—Outlook," we have commenced development plans for a tile and millwork facility in the southeastern U.S. that has an expected cost of $18.5 million to be funded with cash on hand.

Financing Activities

Net cash used in financing activities decreased to $3.1 million in 2018 from $9.1 million in 2017, compared to net cash provided by financing activities of $8.0 million in 2016. Our financing cash flows included $1.6 million cash received on exercise of stock options in 2018, as compared to $2.4 million for 2017 and $0.7 million in 2016. During 2018, we repaid $4.6 million on long-term debt outstanding and related interest, compared to $3.8 million for 2017 and $2.7 million in 2016. The remaining $5.6 million balance of our long-term debt outstanding at December 31, 2018, was repaid in the first quarter of 2019 using cash on hand. This original principal amount of $9.9 million of long-term debt was raised in 2016. In 2017, we repurchased $7.7 million of our common shares outstanding under a normal course issuer bid at a weighted average price of C$5.98.

We currently expect to fund anticipated future investments with available cash. Apart from cash flow from operations, issuing equity and debt has been our primary source of capital to date. Additional debt and/or equity financing may be pursued in the future as deemed appropriate. We may also use our revolving credit facility or pursue equity financing depending on the share price at the time, interest rates, and nature of the investment opportunity and economic climate.

Credit Facility

At June 30, 2019, we had no amounts drawn on our Comerica Credit Facility, and we were in compliance with all covenants thereunder. In 2018 and 2017, we did not draw on the Comerica Credit Facility. The Comerica Credit Facility expired on June 30, 2019.

On July 19, 2019, we entered into a C$50 million senior secured revolving credit facility with the Royal Bank of Canada. The RBC Credit Facility has a three-year term and can be extended for up to two additional years at our option. Interest is calculated at the Canadian or U.S. prime rate with no adjustment, or the bankers' acceptance rate plus 125 basis points. We are required to comply with certain financial covenants under the RBC Credit Facility, including maintaining a minimum fixed charge coverage ratio of 1.15:1 and a maximum debt to Adjusted EBITDA ratio of 3.0:1. We are also required to comply with certain non-financial covenants, including, among other things, covenants restricting our ability to (i) dispose of our property, (ii) enter into certain transactions intended to effect or otherwise permit a material change in our corporate or capital structure, (iii) incur any debt, other than permitted debt, and (iv) permit certain encumbrances on our property.

We are generally restricted from making dividends or distributions on our outstanding capital shares (other than any distribution by way of the payment of dividends by the issuance of equity securities). We may also declare and pay dividends to our shareholders provided that such dividends do not exceed 50% of the Free Operating Cash Flow (as defined in the RBC Credit Facility) for the most recently completed fiscal year and meet certain other conditions. We may also make a one-time Permitted Special Distributions (as defined in the RBC Credit facility) provided that we maintain a minimum balance of at least C$20.0 million in our account and meet certain other conditions.

The RBC Credit Facility is secured by substantially all of our real property located in Canada and the United States.

Contractual Obligations

The following table summarizes DIRTT's contractual obligations at December 31, 2018:

	Payments due by period				
As at December 31, 2018	Less than 1 year	1 to 3 years	3 to 5 years	Greater than 5 years	Total
			($ in thousands)		
Accounts payable and accrued liabilities	$31,281	$ —	$ —	$ —	$31,281
Other liabilities	6,823	—	—	—	6,823
Current and long-term debt	2,500	3,125	—	—	5,625
Operating leases	4,684	9,489	6,103	5,800	26,076
Client deposits	7,701	—	—	—	7,701
Purchase obligations	2,683	—	—	—	2,683
Total	$55,672	$ 12,614	$ 6,103	$ 5,800	$80,189

As of June 30, 2019, there have been no material changes to the commitments and contractual obligations table above outside the ordinary course of business, except that we had outstanding purchase obligations of approximately $5.3 million for inventory and PP&E, which will be funded with cash on hand.

Quantitative and Qualitative Disclosures about Market Risk

Our financial assets and liabilities consist primarily of cash and cash equivalents, trade and other receivables, accounts payable and accrued liabilities, and long-term debt. We are exposed to market, credit and liquidity risks associated with financial assets and liabilities. We currently do not use financial derivatives to reduce exposures from changes in foreign exchange rates, commodity prices, or interest rates. We do not hold or use any derivative instruments for trading or speculative purposes. Our Board has responsibility for the establishment and approval of overall risk management policies, including those related to financial instruments. Management performs continuous assessments to ensure that all significant risks related to financial instruments are reviewed and addressed in light of changes to market conditions and operating activities.

Credit risk

Our principal financial assets are cash and cash equivalents, and trade and other receivables.

Our credit risk is primarily concentrated in our trade receivables. The amounts disclosed in the consolidated statement of financial position are net of allowances for doubtful accounts, estimated by management based on the lifetime expected credit loss model. In order to reduce our risk, management maintains credit policies that include regular review of credit limits of individual Distribution Partners and the use of accounts receivable insurance for a portion of trade receivables. Aging of trade receivables is systematically monitored by management. Trade balances are spread over a broad Distribution Partner base, which is geographically dispersed. No Distribution Partner accounts for greater than 10% of revenue.

We currently maintain trade credit insurance on certain trade receivables. The trade credit insurance provider determines the coverage amount, if any, on an individual Distribution Partner or client basis. Given our credit experience with our Distribution Partners, we anticipate discontinuing this insurance before the end of 2019. Based on our trade receivables balance for 2018, 70% of that balance was covered by the trade credit insurance provider, as compared to 58% for 2017. The majority of the remaining balance in 2018 was less than 90 days old and was owed by a small number of Distribution Partners, on which we regularly review collectability, and government sales that are not covered by the trade credit insurance provider. In addition, and where possible, we collected a 50% deposit on sales, excluding government and certain other clients.

We only provide for balances determined using the lifetime expected credit loss model and had a provision of $0.1 million in each of 2018 and 2017. In 2018, $4.8 million of accounts receivable were due from one Distribution Partner, compared to $2.1 million in 2017, and management continually reviews this Distribution Partner's creditworthiness. Subsequent to year-end, amounts outstanding at year-end were paid.

Market risk

Market risk is the risk that changes in market prices, such as interest rates and foreign currency exchange rates, will affect our income or the value of the financial instruments held.

Foreign exchange risk

Historically, the majority (approximately 80% to 85%) of our revenue is collected in U.S. dollars, and approximately 60% of our costs are also incurred in U.S. dollars. Most other revenue and costs are denominated in Canadian dollars. As a result, we are exposed to fluctuations in the U.S. dollar against the Canadian dollar, which could have a positive or negative impact on our revenue and costs. The recent strengthening of the U.S. dollar versus the Canadian dollar has had a positive impact on results because reported cost reductions are greater than reported revenue reductions.

Our financial instruments are exposed primarily to fluctuations in the Canadian dollar. The following table details our exposure to currency risk at the reporting dates and a sensitivity analysis to changes in currency. The sensitivity analysis includes Canadian dollar-denominated monetary items and adjusts their translation at period end for their respective change in the Canadian dollar. For the respective weakening of the Canadian dollar, there would be an equal and opposite impact on net income and comprehensive income.

	Amount (C$ in thousands)		Change in currency (%)	Effect of net income and comprehensive income for the year ended December 31, 2018	
Cash and cash equivalents	C$	32,467	10.0%	C$	3,247
Trade and other receivables		9,805	10.0%		980
Inventory		15,925	10.0%		1,593
Prepaids and other current assets		2,181	10.0%		218
Accounts payable and accrued liabilities		(20,703)	10.0%		(2,070)
Other liabilities		(5,343)	10.0%		(534)
Client deposits		(314)	10.0%		(31)
Total	C$	34,018	10.0%	C$	3,403

Commodity price risk

We consume raw materials such as aluminum, hardware, wood and veneer, timber, plastic, electrical wiring and components, paint and powder, and fabric and vinyl. While aluminum represents the largest component of our raw materials' expenditures, overall aluminum spend comprises only approximately 10% of cost of sales and, therefore, absolute exposure to price fluctuations has a minimal impact on profitability.

Interest rate risk

Certain of our financial liabilities are subject to interest charges at floating rates and are exposed to fluctuations in interest rates. At December 31, 2018, term loans under our revolving operating facility totaled $5.6 million, compared to $10.2 million at December 31, 2017, and are subject to floating interest rates. An increase in overall interest rates by 0.5% would increase interest expense related to these items and decrease net income (loss) and comprehensive income (loss) by $0.1 million for 2018 and $0.1 million for 2017. An equal decrease in rates would generate an equal amount of interest savings. These term loans were repaid without penalty in January of 2019.

Significant Accounting Policies and Estimates

Our significant accounting policies are described in Note 2 to our Consolidated Financial Statements appearing elsewhere in this registration statement. Our critical accounting estimates include the areas where we have made what we consider to be particularly difficult, subjective or complex judgements in making estimates, and where these estimates can significantly affect our financial results under different assumptions and conditions. We prepare our financial statements in conformity with GAAP. As a result, we are required to make estimates, judgments and assumptions that we believe are reasonable based upon the information available. These estimates, judgments and assumptions affect the reported amounts of assets and liabilities at the date of the financial statements and reported amounts of revenue and expenses during the periods presented. Actual results could be different from these estimates. Critical estimates and assumptions made by management include:

Estimates of liabilities associated with the potential and amount of warranty, legal claims and other contingencies

We have warranty obligations with respect to manufacturing defects on most of our manufactured products. Warranty periods generally range from 1 to 10 years. We have recorded a reserve for estimated warranty and related costs based on historical experience and periodically adjust these provisions to reflect actual experience. We assess the adequacy of our warranty accrual on a quarterly basis, and adjust the previous amounts recorded, if necessary, to reflect the change in estimate of the future costs of claims yet to be serviced. Typically, product deficiencies requiring our warranty are identified and remediated within a year of production. The following provides information with respect to our warranty accrual. At December 31, 2018 and 2017, we had $1.5 million and $0.6 million, respectively, accrued for warranty provision, and third-party costs associated with remedying deficiencies were $2.1 million during the fiscal 2018, as compared to $0.8 million during fiscal 2017. The change relates to the previously noted increase in the incidence of tile warping as a result of a change in the composition of the underlying medium density fiberboard substrate. This issue is currently being addressed, and our warranty provision may change as the assessment of this issue changes.

We establish reserves for estimated legal contingencies when we believe a loss on litigation is probable and the amount of the loss can be reasonably estimated. Revisions to contingent liability reserves are reflected in operations in the period in which there are changes in facts and circumstances that affect our previous assumptions with respect to the likelihood or amount of loss. Reserves for contingent liabilities are based upon our assumptions and estimates regarding the probable outcome of the matter. We estimate the probable cost by evaluating historical precedent as well as the specific facts relating to each contingency (including the opinion of outside advisors). Should the outcome differ from our assumptions and estimates, or other events result in a material adjustment to the accrued estimated reserves, revisions to the estimated reserves for contingent liabilities would be required and would be recognized in the period the new information becomes known. At December 31, 2018 and 2017, we had $2.0 million and $1.3 million, respectively, provided for legal provisions.

Estimates of useful lives of depreciable assets and the fair value of long-term assets used for impairment calculations

We evaluate the recoverability of our PP&E and capitalized software costs when events or changes in circumstances indicate a potential impairment exists. If impairment is indicated, the impairment loss is measured as the amount the assets carrying value exceeds the fair value of the assets.

Our determination of the fair value associated with long-term assets involve significant estimates and assumptions, including those with respect to the determination of asset groups, future cash inflows and outflows, discount rates, and asset lives. These significant estimates require considerable judgment, which could affect our future results if the current estimates of future performance and fair values change.

We estimate the useful lives of PP&E and capitalized software costs based on the period over which the assets are expected to be available for use. The estimated useful lives are reviewed annually and are updated if expectations differ from previous estimates due to physical wear and tear, technical or commercial obsolescence and legal or other limits on the use of the relevant assets. In addition, the estimation of the useful lives of the relevant assets may be based on internal technical evaluation and experience with similar assets. It is possible, however, that future results of operations could be materially affected by changes in the estimates brought about by changes in factors mentioned above. The amounts and timing of recorded expenses for any period would be affected by changes in these factors and circumstances. A reduction in the estimated useful lives of the PP&E and intangible assets would increase the recorded expenses and decrease the non-current assets.

Estimates of future taxable earnings used to assess the realizable value of deferred tax assets

We use the asset and liability method of accounting for income taxes. Under this method, deferred income tax assets and liabilities arise from temporary differences between the tax bases of assets and liabilities and their carrying amounts reported in the financial statements. Deferred income tax assets also reflect the benefit of unutilized tax losses that can be carried forward to reduce income taxes in future years. Such method requires the exercise of significant judgment in determining whether or not our deferred tax assets are probable of recovery from taxable income of future years and therefore, can be recognized in the financial statements. Also, estimates are required to determine the expected timing upon which tax assets will be realized and upon which tax liabilities will be settled. We assess the ability to recover our deferred tax assets every quarter and concluded that deferred tax assets should be recovered in the normal course of operations.

Tax interpretations, regulations and legislations in the various jurisdictions in which the Company and its subsidiaries operate

The determination of our provision for income taxes requires significant judgment, the use of estimates and the interpretation and application of complex tax laws. Our provision for income taxes reflects a combination of income earned and taxed in the various U.S. federal and state, and Canadian federal and provincial jurisdictions. Jurisdictional tax law changes increase or decreases in permanent differences between book and tax items, accruals or adjustments of accruals for tax contingencies or valuation allowances, and the change in the mix of earnings from these taxing jurisdictions all affect the overall effective tax rate.

We have no liability for uncertain tax positions. However, should we accrue for such liabilities, when and if they arise in the future, we will recognize interest and penalties associated with uncertain tax positions as part of our income tax provision.

Estimates of the fair value of stock awards, including whether the performance criteria will be met and measurement of the ultimate payout amount

We use a fair-value based approach for measuring stock-based compensation and record compensation expense over an award's vesting period based on the award's fair value at the date of grant. Our awards vest based on service conditions and compensation expense is recognized on a straight-line basis. Stock-based compensation expense is recognized only for those awards that ultimately vest.

We have allowed certain vested share options to be surrendered for cash, resulting in the share options being accounted for as liabilities at fair value every period which increases the sensitivity of our accounting to share price movements.

Estimates of ability and timeliness of customer payments of accounts receivable

Our allowance for doubtful accounts reflects reserves for customer receivables to reduce receivables to amounts expected to be collected. Management uses significant judgment in estimating uncollectible amounts. In estimating uncollectible accounts, management considers factors such as current overall economic conditions, industry-specific economic conditions, historical customer performance and anticipated customer performance. While we believe these processes effectively address our exposure for doubtful accounts and credit losses have historically been within expectations, changes in the economy, industry, or specific customer conditions may require adjustments to the allowance for doubtful accounts. We have a contract with a trade credit insurance provider, whereby a portion of its trade receivables are insured. The trade credit insurance provider determines the coverage amount, if any, on a customer-by-customer basis. Based on our trade receivables balance as at December 31, 2018 and 2017, 70% and 58%, respectively, of that balance was covered by trade credit insurance provider.

At December 31, 2018 and 2017, we had an allowance for doubtful accounts of $0.1 million.

Recent Accounting Pronouncements

Please refer to Note 3 to our Consolidated Financial Statements appearing elsewhere in this registration statement.